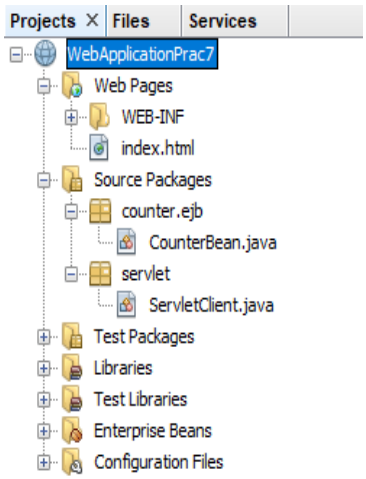
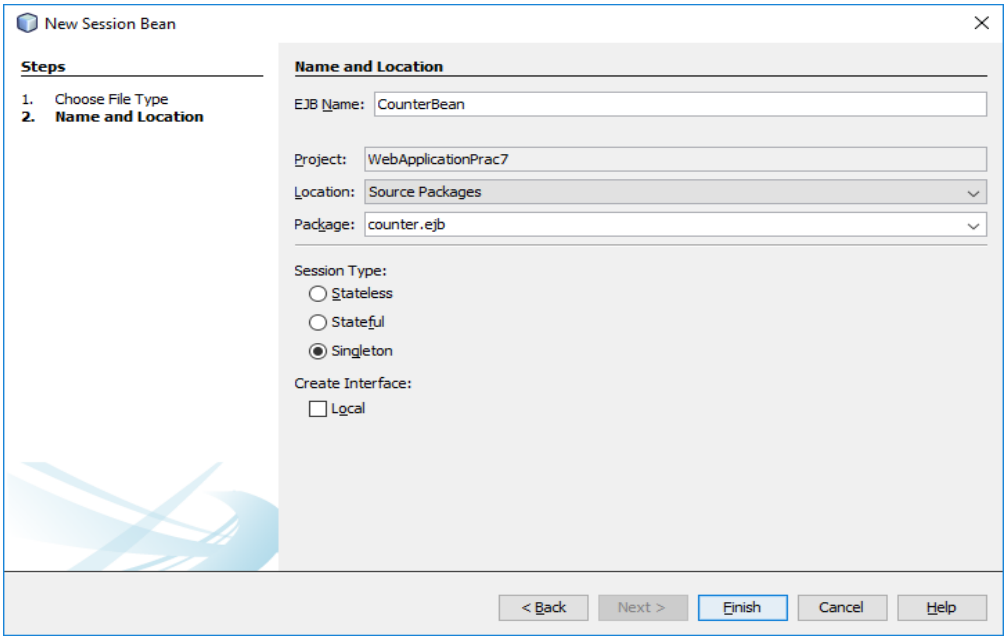
**Roll No:** **Practical - 07** **Date:**

## 7a) Develop simple EJB application to demonstrate Servlet Hit count using Singleton Session Beans.




**File Name: Index.html**

```
<!DOCTYPE html>
<html>
  <head>
    <title>Client</title>
    <meta http-equiv="Refresh" content="0; URL=ServletClient">
  </head>
  <body>
  </body>
</html>
```

**File Name: CounterBean.java**

```
package counter.ejb;
import javax.ejb.Singleton;

@Singleton
public class CounterBean {
    private int hits = 1;

  //Increment and return the number of hits
    public synchronized int getHits()
    {
      return hits++;
    }
}
```

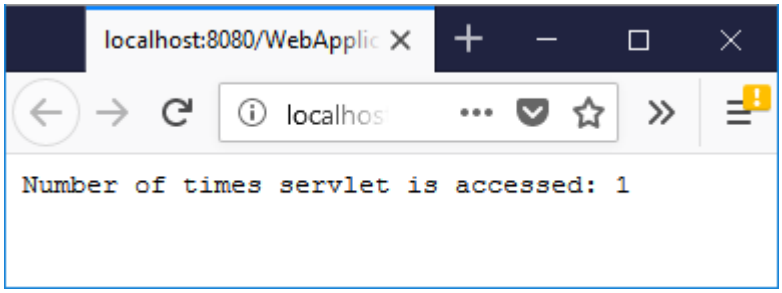
**File Name: ServletClient.java**

```
package servlet;
```

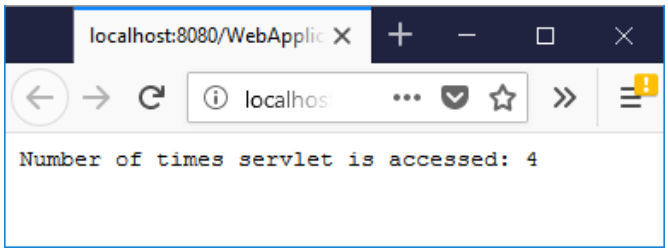
**Roll No:** **Practical - 07** **Date:**

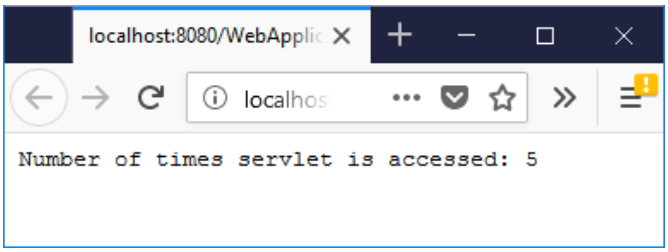
```
import counter.ejb.CounterBean;
import java.io.IOException;
import java.io.PrintWriter;
import javax.ejb.EJB;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

@WebServlet(name = "ServletClient", urlPatterns = {"/ServletClient"})
public class ServletClient extends HttpServlet {

    @EJB CounterBean bean;

    @Override
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        PrintWriter out=response.getWriter();
        out.println("Number of times servlet is accessed: " + bean.getHits());
    }
}
```

**Output:**



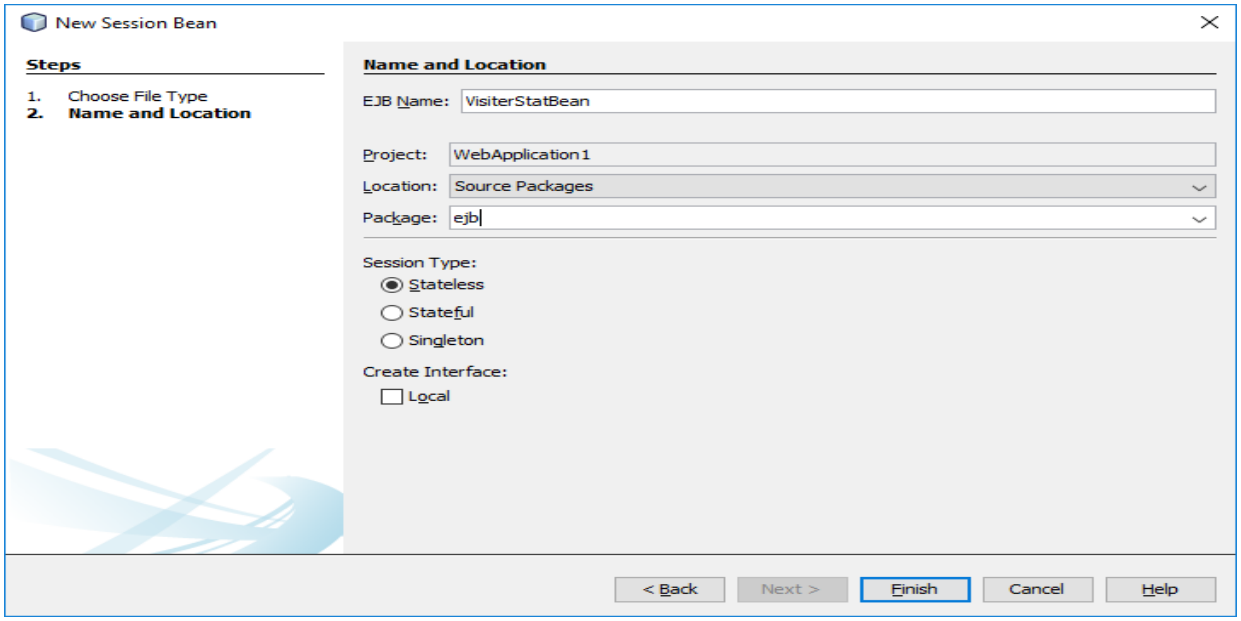

**Refresh the page several times, the counter will increment**

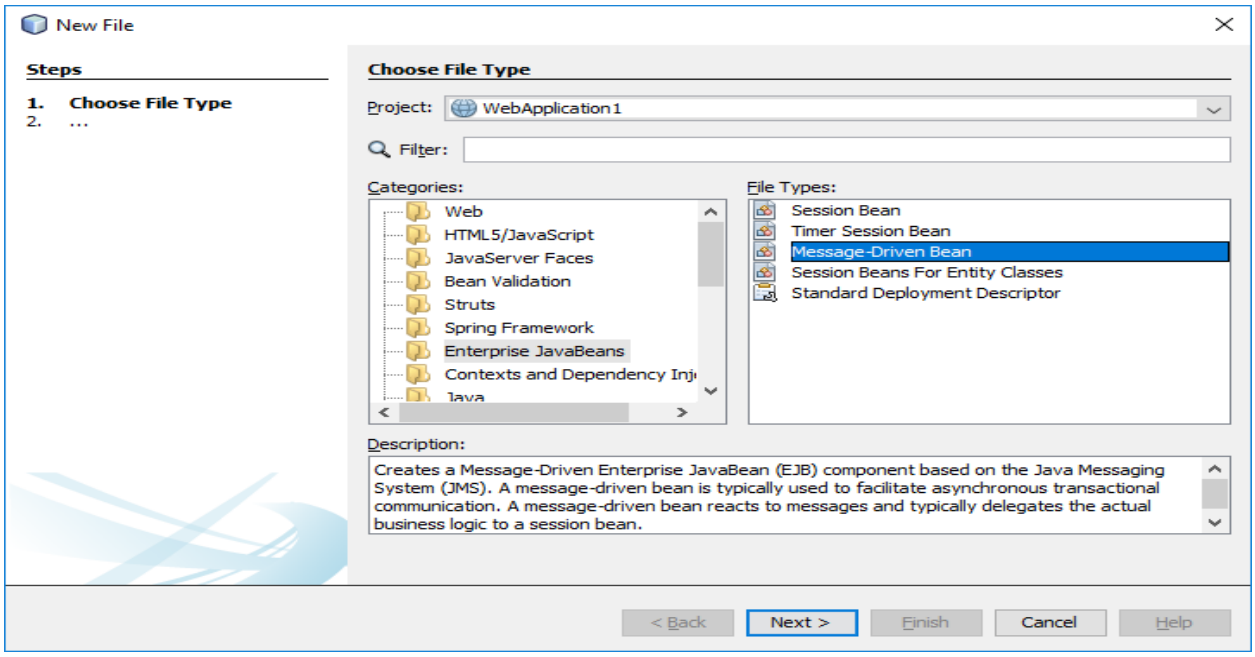


**Roll No:** **Practical - 07** **Date:**

## 7b) Develop simple visitor Statistics application using Message Driven Bean [Stateless Session Bean]



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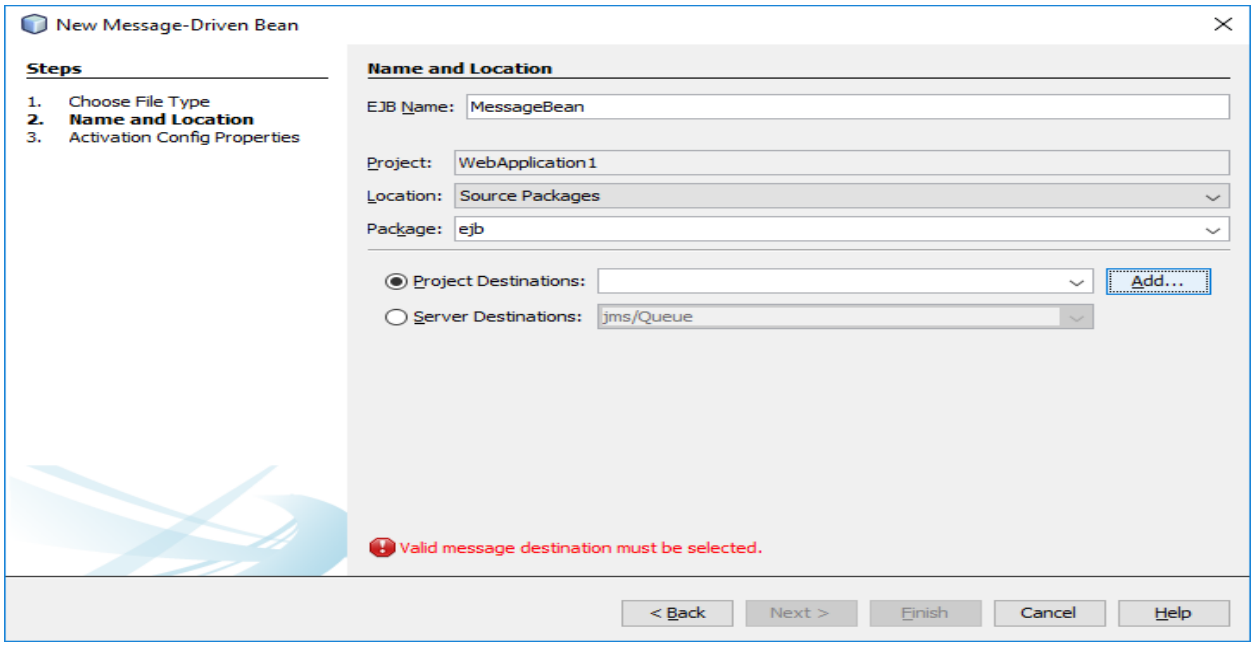
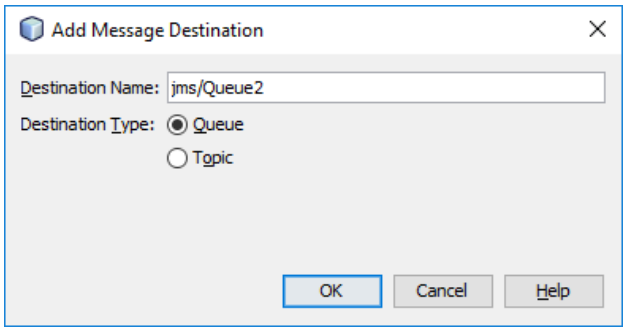
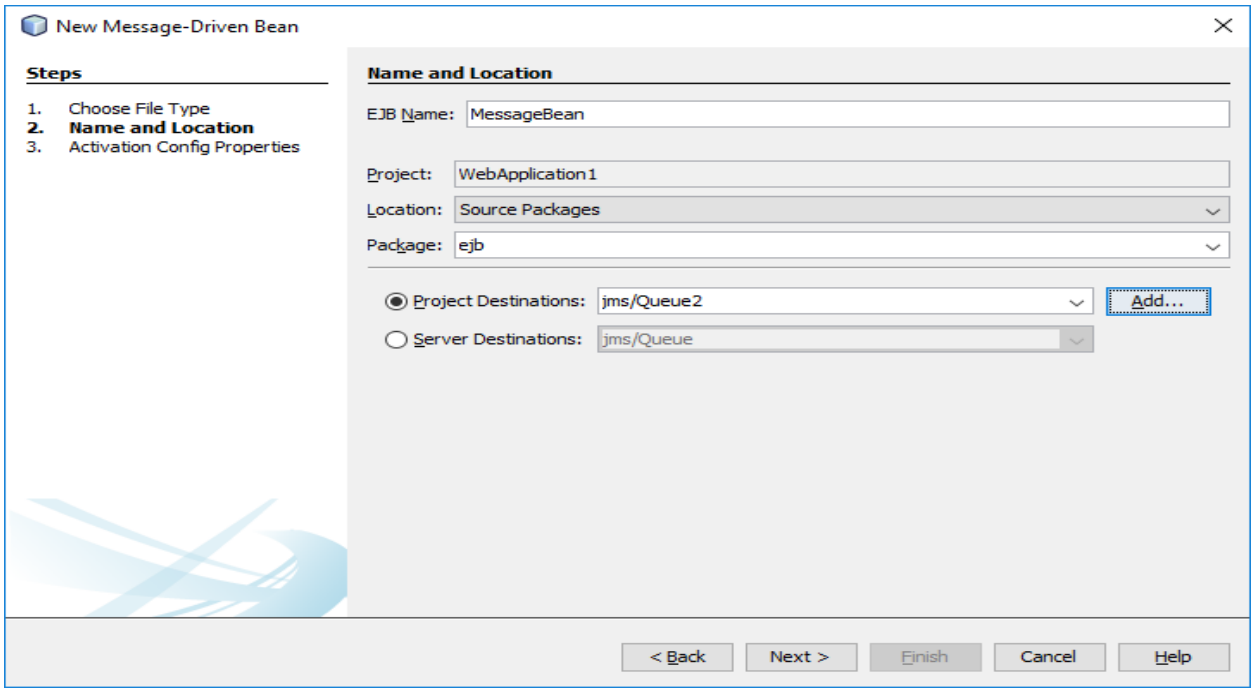
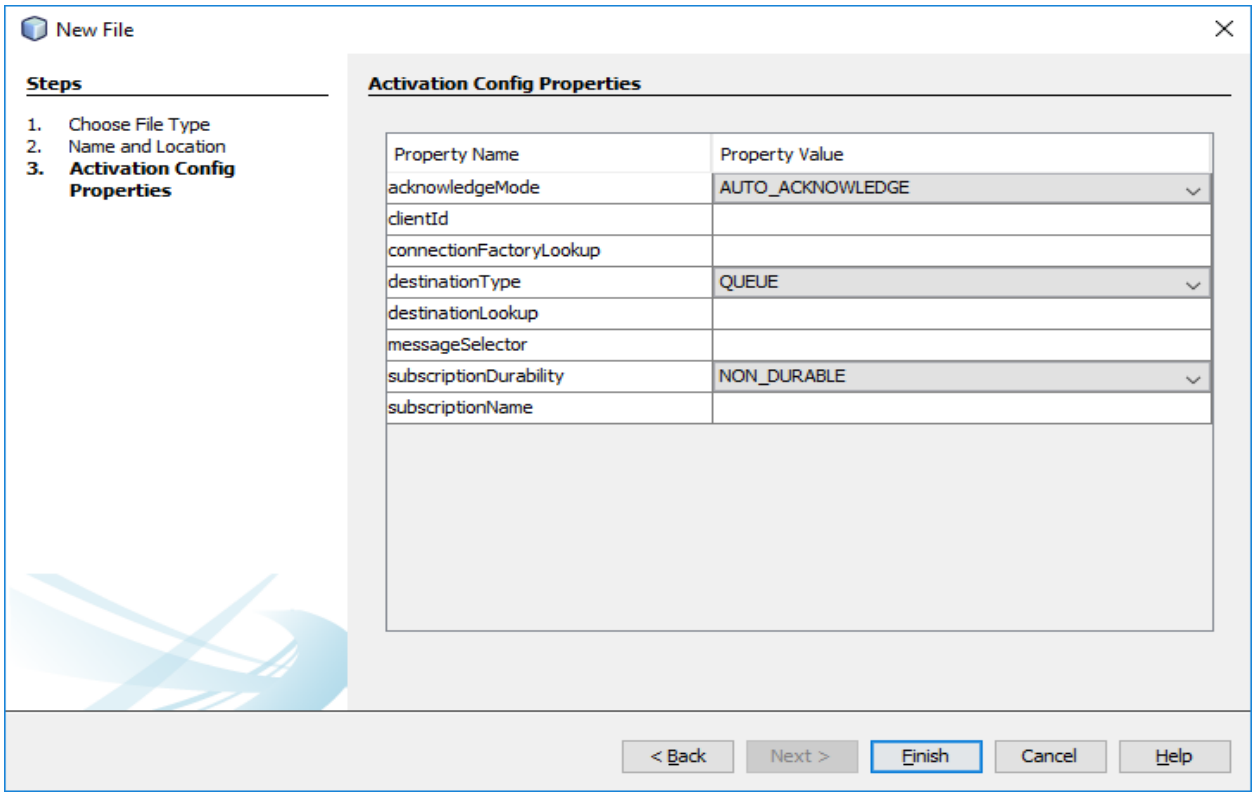
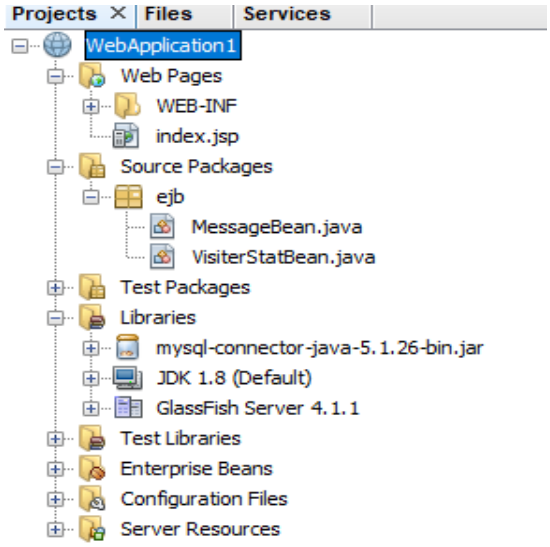


**Roll No:** **Practical - 07** **Date:**




**MySQL Queries**

```
CREATE DATABASE visitorstat;

USE visitorstat;

CREATE TABLE UserStat(
        firstvisitdt timestamp NOT NULL,
        hostname varchar(30) PRIMARY KEY,
        visits int);
```

**File Name: Index.jsp**

```
<%@page import="javax.jms.Connection"%>
<%@page import="javax.jms.JMSException"%>
<%@page import="javax.naming.InitialContext"%>
```

```
<%@page import="javax.jms.MessageProducer"%>
<%@page import="javax.jms.TextMessage"%>
<%@page import="javax.jms.Session"%>
<%@page import="javax.jms.Queue"%>
<%@page import="javax.jms.ConnectionFactory"%>
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<%!
   private static ConnectionFactory connectionFactory;
   private static Queue queue;

   Connection connection = null;
   Session mysession = null;
   MessageProducer messageProducer = null;
   TextMessage message = null;
%>

<html>
   <head>
      <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
      <title>JSP Page</title>
   </head>
   <body>
     <h3>Welcome To Home page</h3>

      <%
   try {
      InitialContext ctx = new InitialContext();
      queue = (Queue) ctx.lookup("jms/Queue2");
      connectionFactory = (ConnectionFactory) ctx.lookup("jms/QueueFactory");

      connection = connectionFactory.createConnection();
      mysession = connection.createSession(false, Session.AUTO_ACKNOWLEDGE);
      messageProducer = mysession.createProducer(queue);
      message = mysession.createTextMessage();

      message.setText(request.getRemoteAddr());
      messageProducer.send(message);
   } catch (JMSException e) {
      System.out.println("Exception occurred: " + e.toString());
   }
%>
   </body>
</html>
```

**File Name: VisiterStatBean.java**

```
package ejb;

import javax.ejb.Stateless;
import java.sql.*;
import javax.annotation.*;

@Stateless
public class VisiterStatBean {
```

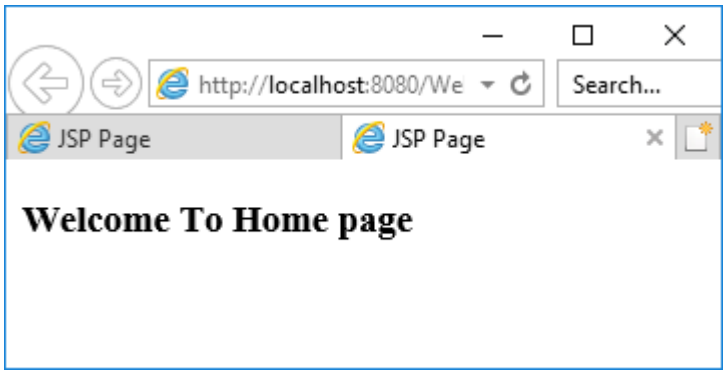
```
    private Connection conn = null;
    private ResultSet rs;
    private Statement stmt = null;
    private String query = null;

    @PostConstruct
    public void connect() {
        try {
            Class.forName("com.mysql.jdbc.Driver").newInstance();
            conn = DriverManager.getConnection("jdbc:mysql://localhost:3306/visitorstat", "root", "root");
            System.out.println("connection successfull.");
        } catch(Exception e) {
            System.err.println("connection failed");
        }
    }

    @PreDestroy
    public void disconnect() {
        try {
            conn.close();
            System.out.println("connection closed");
        } catch(SQLException e) {
            System.err.println("Cannot close connection: " + e.getMessage());
        }
    }

    public void addVisitor(String host) {
        try {
            stmt = conn.createStatement();
            query = "INSERT INTO UserStat (hostname, visits) VALUES('" + host + "','1')";
            stmt.executeUpdate(query);
        } catch(SQLException e) {
            try {
                stmt = conn.createStatement();
                query = "UPDATE UserStat SET visits = visits + 1 WHERE hostname = '" + host + "'";
                stmt.executeUpdate(query);
            } catch(SQLException ex) {
                System.err.println("Cannot update: " + ex.getMessage());
            }
        }
    }
}
```

**File Name: MessageBean.java**

```
package ejb;

import javax.annotation.Resource;
import javax.ejb.ActivationConfigProperty;
import javax.ejb.EJB;
import javax.ejb.MessageDriven;
import javax.ejb.MessageDrivenContext;
import javax.jms.JMSException;
import javax.jms.Message;
import javax.jms.MessageListener;
```

```
import javax.jms.TextMessage;

@MessageDriven(activationConfig = {
   @ActivationConfigProperty(propertyName = "destinationLookup", propertyValue = "jms/Queue2")
   ,@ActivationConfigProperty(propertyName = "destinationType", propertyValue = "javax.jms.Queue")
})
public class MessageBean implements MessageListener {
   @EJB
   VisiterStatBean vs;

   @Resource
   private MessageDrivenContext mdc;

   public MessageBean() {
   }

   @Override
   public void onMessage(Message message) {
      try {
         if (message instanceof TextMessage) {
            TextMessage msg = (TextMessage) message;
            vs.addVisitor(msg.getText());
         }
      } catch (JMSException e) {
         mdc.setRollbackOnly();
      }
   }
}
```

**Output**




**Refresh the webpage several times and the "visits" in the UserStat increases as follows**

**mysql> select * from UserStat;**

```
+---------------------+-----------------+--------+
| firstvisitdt        | hostname        | visits |
+---------------------+-----------------+--------+
| 2018-09-03 18:38:57 | 0:0:0:0:0:0:0:1 |      3 |
+---------------------+-----------------+--------+
```